

**TOWN OF WATERTOWN
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2007

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Report Summary:

Highlights

January 1, 2006

January 1, 2007

Contributions

Funding Schedule FY 2008	\$7,276,020	\$7,276,020
Funding Schedule FY 2009	7,400,607	7,422,874

Funded Ratios

GAS No. 25	59.3%	67.5%
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Participants

Actives	514	517
Retirees and Beneficiaries	344	338
Vested	0	0
Inactives	157	167
Disabled	<u>75</u>	<u>68</u>
Total	1,090	1,090

Payroll

Payroll of Active Members	\$22,327,190	\$23,088,471
Average Payroll	43,438	44,659

Normal Cost

Employer	1,329,761	1,353,486
Employee	1,828,884	1,893,908
Administrative Expenses	<u>220,000</u>	<u>225,000</u>
Total	3,378,645	3,472,394

Actuarial Accrued Liabilities

Actives	55,079,082	59,378,525
Retirees, Beneficiaries, Disabilities and Inactives	<u>74,264,043</u>	<u>73,291,317</u>
Total	130,484,841	132,669,842

Actuarial Value of Assets

<u>77,395,170</u>	<u>89,578,902</u>
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Unfunded Actuarial Accrued Liabilities

\$53,089,671	\$43,090,940
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Introduction

This report presents the findings of an actuarial valuation as of January 1, 2007, of Watertown Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2007.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Town of Watertown Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2007.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the preceding year, the total unfunded actuarial accrued liability decreased by 18.8% to \$43,090,940. The decrease is the result of net favorable actuarial experience. The actuarial value of assets for 2006 had a return of 14.8%. The Board also voted to fresh start the actuarial smoothing of assets. The sources of the (gain)/loss are as follows:

Investment	(360,679)
Salary	(1,479,017)
Retiree Mortality	(1,260,213)
Active Decrements (Termination)	(139,733)
Active Decrements (Disability)	(346,883)
Active Decrements (Retirement)	(44,957)
Active Decrements (Death)	(30,898)
New Entrants	138,150
Other (Data corrections, Section 3(8)(c), Service buybacks)	406,971
Fresh Start of Actuarial Value of Assets	<u>(5,775,539)</u>
Total (gain)/loss	(8,892,798)

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>January 1, 2006</u>	<u>January 1, 2007</u>
Superannuation	\$2,169,749	\$2,263,840
Termination	266,880	252,042
Death	155,434	160,834
Disability	566,582	570,678
Administrative Expenses	<u>220,000</u>	<u>225,000</u>
Total Normal Cost	3,378,645	3,472,394
% of Pay	15.1%	15.0%
Employee Contributions	1,828,884	1,893,908
% of Pay	8.2%	8.2%
Employer Normal Cost	\$1,549,761	\$1,578,486
% of Pay	6.9%	6.8%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	<u>January 1, 2006</u>	<u>January 1, 2007</u>
Actives		
Superannuations	\$48,077,381	\$52,211,449
Termination	914,311	868,679
Death	1,773,757	1,878,693
Disability	4,313,633	4,419,704
Retirees and Inactives		
Retirees and Beneficiaries	58,835,506	56,206,138
Vested	0	0
Terminated (Refund)	1,141,716	1,249,283
Disabled	<u>15,428,537</u>	<u>15,835,896</u>
Total	\$130,484,841	\$132,669,842

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>January 1, 2006</u>	<u>January 1, 2007</u>
Actives		
Superannuation	\$69,701,192	\$74,185,675
Termination	2,014,680	1,925,442
Death	3,200,216	3,325,534
Disability	10,488,360	10,632,331
Retirees and Inactives		
Retirees and Beneficiaries	58,835,506	56,206,138
Vested	0	0
Terminated (Refund)	1,141,716	1,249,283
Disabled	<u>15,428,537</u>	<u>15,835,896</u>
Total	\$160,810,207	\$163,360,299

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>January 1, 2006</u>	<u>January 1, 2007</u>
Cash equivalents	\$69,969	\$595,403
Short term investments	269,267	345,957
Fixed income securities	20,235,860	20,538,698
Equities	31,088,121	41,645,284
International	12,227,573	15,337,967
Real Estate	5,946,092	7,981,538
Venture Capital	0	0
Other	2,096,970	2,849,969
Accounts receivable	6,200,780	164,362
Accounts payable	(4,560)	(15,616)
Accrued income	<u>43,173</u>	<u>135,340</u>
Total Market Value	\$78,173,247	\$89,578,902
Total Actuarial Value	\$77,395,170	\$89,578,902

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.0%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 10%. The calculation of the actuarial value of assets as of January 1, 2007 is presented in Table V.

Table V

	<u>January 1, 2007</u>
(1) Market value at January, 1, 2006	\$78,173,247
(2) 2006 Contributions	9,787,647
(3) 2006 Benefit payments	(9,926,204)
(4) Net interest adjustment at 8.0% on (1), (2), and (3) to December 31, 2006	<u>6,248,317</u>
(5) Expected market value on January, 1, 2007	\$84,283,007
(1) + (2) + (3) + (4)	
(6) Actual market value on January, 1, 2007	\$89,578,902
(7) 2006 Gain	(5,295,895)
(8) 80% of 2006 gain	(4,236,716)
(9) 2005 Loss	1,333,320
(10) 60% of 2005 loss	799,992
(11) 2004 Gain	(2,242,594)
(12) 40% of 2004 gain	(897,038)
(13) 2003 Gain	(7,208,888)
(14) 20% of 2003 gain	<u>(1,441,778)</u>
(15) Actuarial value on January, 1, 2007 before fresh start	
(6) + (8) + (10) + (12) + (14) but not less than 90% or more than 110% of (6)	\$83,803,363
(16) Ratio of actuarial value to market value	93.55%
(17) 2005 Market Value Return on Assets	6.2%
(18) 2005 Actuarial Value Return on Assets	5.3%
(19) 2006 Market Value Return on Assets	14.8%
(20) 2006 Actuarial Value Return on Assets	8.5%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>January 1, 2006</u>	<u>January 1, 2007</u>
Actuarial Accrued Liability	\$130,484,841	\$132,669,842
Actuarial Assets	<u>77,395,170</u>	<u>89,578,902</u>
Unfunded Actuarial Accrued Liability	\$53,089,671	\$43,090,940
Funded Status	59.3%	67.5%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2017
\$ 42,955,355 over 10 years with 2.5% increasing payments
- Level amortization of the Early Retirement Incentive by June 30, 2008
\$ 135,585 over 1 years
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2006</u>	<u>January 1, 2007</u>
Normal cost	\$1,549,761	\$1,578,486
Amortization payment of the prior accrued liability	5,045,933	5,373,828
Amortization payment of 1992 ERI liability	<u>135,899</u>	<u>135,585</u>
Total cost	\$6,731,593	\$7,087,899
% of Pay	30.1%	30.7%
Fiscal 2008 cost	\$7,276,020	\$7,276,020
Fiscal 2009 cost	\$7,400,607	\$7,422,874

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 10 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 31.5% of payroll, decreasing to 26.4% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 5.0% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

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Appropriation Forecast

Fiscal			Employer	Amortization	Employer	Employer	
Year		Employee	Normal Cost	Payments	Total Cost	Total Cost	Funded
<u>Ending</u>	<u>Payroll*</u>	<u>Contribution</u>	<u>with Interest</u>	<u>with Interest</u>	<u>with Interest</u>	<u>% of Payroll</u>	<u>Ratio %**</u>
2008	\$23,088,471	\$1,893,908	\$1,640,411	\$5,635,610	\$7,276,021	31.5	67.5
2009	\$24,127,452	\$2,006,846	\$1,685,430	\$5,737,444	\$7,422,874	30.8	70.5
2010	\$25,213,188	\$2,126,114	\$1,731,178	\$5,880,880	\$7,612,058	30.2	73.4
2011	\$26,347,781	\$2,252,052	\$1,777,632	\$6,027,902	\$7,805,534	29.6	76.5
2012	\$27,533,431	\$2,385,018	\$1,824,760	\$6,178,600	\$8,003,360	29.1	79.6
2013	\$28,772,436	\$2,525,392	\$1,872,530	\$6,333,065	\$8,205,595	28.5	82.8
2014	\$30,067,195	\$2,673,569	\$1,920,904	\$6,491,392	\$8,412,296	28.0	86.1
2015	\$31,420,219	\$2,829,969	\$1,969,840	\$6,653,676	\$8,623,516	27.4	89.5
2016	\$32,834,129	\$2,995,030	\$2,019,291	\$6,820,018	\$8,839,309	26.9	92.9
2017	\$34,311,665	\$3,169,216	\$2,069,203	\$6,990,519	\$9,059,722	26.4	96.4
2018	\$35,855,689	\$3,353,014	\$2,119,518	\$0	\$2,119,518	5.9	100.0
2019	\$37,469,195	\$3,546,937	\$2,170,172	\$0	\$2,170,172	5.8	100.0
2020	\$39,155,309	\$3,751,522	\$2,221,092	\$0	\$2,221,092	5.7	100.0
2021	\$40,917,298	\$3,967,337	\$2,272,200	\$0	\$2,272,200	5.6	100.0
2022	\$42,758,577	\$4,194,979	\$2,323,411	\$0	\$2,323,411	5.4	100.0
2023	\$44,682,713	\$4,435,075	\$2,374,629	\$0	\$2,374,629	5.3	100.0
2024	\$46,693,435	\$4,688,285	\$2,425,752	\$0	\$2,425,752	5.2	100.0
2025	\$48,794,639	\$4,955,303	\$2,476,667	\$0	\$2,476,667	5.1	100.0
2026	\$50,990,398	\$5,236,858	\$2,527,253	\$0	\$2,527,253	5.0	100.0
2027	\$53,284,966	\$5,533,719	\$2,577,376	\$0	\$2,577,376	4.8	100.0
2028	\$55,682,789	\$5,846,693	\$2,626,892	\$0	\$2,626,892	4.7	100.0
2029	\$58,188,515	\$6,109,794	\$2,745,103	\$0	\$2,745,103	4.7	100.0
2030	\$60,806,998	\$6,384,735	\$2,868,632	\$0	\$2,868,632	4.7	100.0
2031	\$63,543,313	\$6,672,048	\$2,997,721	\$0	\$2,997,721	4.7	100.0
2032	\$66,402,762	\$6,972,290	\$3,132,618	\$0	\$3,132,618	4.7	100.0
2033	\$69,390,886	\$7,286,043	\$3,273,586	\$0	\$3,273,586	4.7	100.0
2034	\$72,513,476	\$7,613,915	\$3,420,897	\$0	\$3,420,897	4.7	100.0
2035	\$75,776,583	\$7,956,541	\$3,574,838	\$0	\$3,574,838	4.7	100.0
2036	\$79,186,529	\$8,314,586	\$3,735,705	\$0	\$3,735,705	4.7	100.0
2037	\$82,749,923	\$8,688,742	\$3,903,812	\$0	\$3,903,812	4.7	100.0
2038	\$86,473,669	\$9,079,735	\$4,079,484	\$0	\$4,079,484	4.7	100.0
2039	\$90,364,984	\$9,488,323	\$4,263,060	\$0	\$4,263,060	4.7	100.0

* Calendar basis

** Beginning of Fiscal Year

GASB Statements No. 25 and No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VIII.

Table VIII

	<u>January 1, 2006</u>	<u>January 1, 2007</u>
(1) Actuarial Accrued Liability	\$130,484,841	\$132,669,842
(2) Actuarial Value of Assets	<u>77,395,170</u>	<u>89,578,902</u>
(3) Unfunded Actuarial Accrued Liability	53,089,671	43,090,940
(4) Funded Ratio (2)/(1)	59.3%	67.5%
(5) Covered Payroll	\$22,327,190	\$23,088,471
(6) UAAL as a percentage of payroll: (3)/(5)	237.8%	186.6%
(7) Annual Required Contribution (ARC)	\$6,770,135	\$7,276,021
(8) Net Pension Obligation	\$0	\$0

PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Buck Consultants as of January 1, 2007.

The normal cost for employees on that date was:	\$1,893,908	8.2% of pay
The normal cost for the employer was:	1,353,486	5.9% of pay

The actuarial liability for active members was:	\$59,378,525
The actuarial liability for retired and inactive members was:	73,291,317
Total actuarial accrued liability:	132,669,842
System assets as of that date:	89,578,902
Unfunded actuarial accrued liability:	\$43,090,940

The ratio of system's assets to total actuarial liability was	67.5%
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The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.0%
Rate of Salary Increase:	5.0%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/c
01/01/07	\$89,578,902	\$132,669,842	\$43,090,940	67.5%	\$23,088,471	186.6%
01/01/06	77,395,170	130,484,841	53,089,671	59.3%	22,327,190	237.8%
01/01/04	72,563,856	120,699,469	48,135,613	60.1%	21,673,650	222.1%
01/01/02	70,633,407	111,494,385	40,860,978	63.4%	19,735,159	207.0%
01/01/01	66,804,435	100,876,281	34,071,846	66.2%	19,379,204	175.8%
01/01/00	67,485,797	93,900,795	26,414,998	71.9%	18,231,939	144.9%
01/01/99	56,172,432	90,052,933	33,880,501	62.4%	15,732,197	215.4%

Attach Copy of Current Approved Funding Schedule

EXHIBITS

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Age/Service Distribution with Salary as of January 1, 2007

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	9	0	0	0	0	0	0	0	0	9
	33,625	0	0	0	0	0	0	0	0	33,625
25-29	33	3	0	0	0	0	0	0	0	36
	36,436	59,281	0	0	0	0	0	0	0	38,340
30-34	21	21	0	0	0	0	0	0	0	42
	48,848	52,865	0	0	0	0	0	0	0	50,857
35-39	21	16	6	3	0	0	0	0	0	46
	37,200	52,196	59,723	58,267	0	0	0	0	0	46,727
40-44	18	16	11	11	4	0	0	0	0	60
	27,378	47,887	48,209	68,826	52,474	0	0	0	0	45,938
45-49	13	24	11	13	14	1	0	0	0	76
	31,135	32,826	44,603	51,340	75,682	62,919	0	0	0	45,699
50-54	17	16	23	15	23	9	5	0	0	108
	31,799	29,179	38,941	50,051	62,932	81,403	74,112	0	0	48,190
55-59	6	14	9	10	5	12	7	4	1	68
	28,880	27,095	35,966	39,532	44,530	62,749	71,280	61,817	44,442	44,675
60-64	3	10	6	6	8	2	3	1	3	42
	36,569	38,468	30,378	30,278	40,082	45,013	74,444	83,239	48,489	40,977
65-69	2	8	0	4	2	1	1	0	1	19
	23,808	32,545	0	24,456	30,705	5,000	49,026	0	46,433	29,877
70+	0	2	1	3	0	3	1	1	0	11
	0	23,526	47,450	39,597	0	15,429	42,670	57,429	0	32,698
Total Employees	143	130	67	65	56	28	17	6	5	517
Average Salary	35,530	40,119	42,214	48,364	59,314	60,352	69,679	64,656	47,268	44,659

Retiree Distribution as of January 1, 2007

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	0	0	0	0	0	0
50-54	1	0	1	15,274	0	15,274
55-59	18	2	20	662,617	14,743	677,359
60-64	28	9	37	1,093,695	103,690	1,197,385
65-69	32	12	44	870,079	157,325	1,027,404
70-74	31	11	42	847,918	146,514	994,432
75-79	38	26	64	833,427	268,900	1,102,326
80-84	50	14	64	988,356	189,215	1,177,571
85-89	19	17	36	275,816	166,599	442,415
90-94	12	11	23	175,021	103,637	278,658
95-99	3	4	7	28,349	29,603	57,952
Total	232	106	338	5,790,552	1,180,224	6,970,776
Average (Age/Payment)	74.9	78.7	76.1	24,959	11,134	20,624
Frequency Percent	68.6	31.4	100	83.1	16.9	100

Disabled Retiree Distribution as of January 1, 2007

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	1	0	1	27,980	0	27,980
45-49	1	0	1	24,717	0	24,717
50-54	1	0	1	26,531	0	26,531
55-59	8	2	10	227,641	81,953	309,594
60-64	11	0	11	329,242	0	329,242
65-69	7	0	7	299,124	0	299,124
70-74	8	0	8	174,735	0	174,735
75-79	14	0	14	353,232	0	353,232
80-84	12	1	13	281,514	4,484	285,998
85-89	2	0	2	42,464	0	42,464
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	65	3	68	1,787,179	86,436	1,873,615
Average (Age/Payment)	70.5	65.2	70.3	27,495	28,812	27,553
Frequency Percent	95.6	4.4	100	95.4	4.6	100

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2007	\$9,011,212	\$1,893,908	\$7,276,021	\$7,100,221	\$7,258,938
2008	9,168,563	2,006,846	7,422,874	7,571,456	7,832,613
2009	9,375,536	2,126,114	7,612,058	8,195,140	8,557,776
2010	9,657,716	2,252,052	7,805,534	8,874,064	9,273,934
2011	10,024,503	2,385,018	8,003,360	9,607,149	9,971,024
2012	10,365,159	2,525,392	8,205,595	10,397,222	10,763,050
2013	10,725,440	2,673,569	8,412,296	11,250,090	11,610,515
2014	11,094,280	2,829,969	8,623,516	12,170,632	12,529,838
2015	11,463,818	2,995,030	8,839,309	13,164,914	13,535,435
2016	11,861,791	3,169,216	9,059,722	14,238,760	14,605,907
2017	12,342,023	3,353,014	2,119,518	15,131,271	8,261,780
2018	12,837,788	3,546,937	2,170,172	15,773,282	8,652,603
2019	13,363,022	3,751,522	2,221,092	16,445,504	9,055,096
2020	13,909,745	3,967,337	2,272,200	17,149,190	9,478,982
2021	14,478,836	4,194,979	2,323,411	17,886,024	9,925,578
2022	15,071,210	4,435,075	2,374,629	18,657,797	10,396,291
2023	15,687,821	4,688,285	2,425,752	19,466,410	10,892,627
2024	16,329,659	4,955,303	2,476,667	20,313,885	11,416,197
2025	16,997,756	5,236,858	2,527,253	21,202,370	11,968,725
2026	17,693,187	5,533,719	2,577,376	22,134,152	12,552,060
2027	18,417,071	5,846,693	2,626,892	23,111,663	13,168,177
2028	19,170,571	6,109,794	2,745,103	24,134,869	13,819,196
2029	19,954,898	6,384,735	2,868,632	25,208,919	14,507,387
2030	20,771,316	6,672,048	2,997,721	26,336,731	15,235,184
2031	21,621,135	6,972,290	3,132,618	27,521,424	16,005,197
2032	22,505,723	7,286,043	3,273,586	28,766,318	16,820,223
2033	23,426,503	7,613,915	3,420,897	30,074,958	17,683,267
2034	24,384,954	7,956,541	3,574,838	31,451,124	18,597,549
2035	25,382,619	8,314,586	3,735,705	32,898,855	19,566,528
2036	26,234,551	8,688,742	3,903,812	34,429,779	20,787,782

amounts in thousands

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2007, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

3. **Salary**

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

5. **Average Salary**

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

6. **Creditable Service**

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. Service Retirement

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

8. Deferred Vested Retirement**a. Eligibility:**

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability**a. Eligibility:**

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability**a. Eligibility:**

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits**a. Occupational Death:**

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2007.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.0% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 5% per year.

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$12,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees'

Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of asset returns greater than or less than the assumed rate of return. For 2007 only, the asset smoothing will be fresh started at market value.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

12. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2007 is \$225,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. **Actuarial Accrued Liability**

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. **Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. **Actuarial Cost Method**

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. **Actuarial Present Value**

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. **Forecast**

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Town of Watertown Retirement System contributing as of January 1, 2007, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Buck Consultants, LLC

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 05-4086

August 2007